SECTION 347526

HELICOPTER LANDING SYSTEM

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Pre-engineered aluminum helicopter landing system.

B. Supplementary items necessary to complete work requirements for their installation.

1.2 RELATED WORK

A. Section 05 21 00 – Structural Steel Framing: Building columns and beams.

B. Sections of Division 22: Indoor hot water piping to/from snow melting equipment.

C. Sections of Division 26: Conduit and wiring for light fixtures including perimeter lights and snow melting equipment.

D. Sections of Division 26. Lightning protection.

1.3 REFERENCES

A. ASTM A 123 - ASTM A 123/A 123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

B. ASTM B 221 - ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

C. AWS D1.1 - Structural Welding Code - Steel.

D. AWS D1.4 - Structural Welding Code - Reinforcing Steel.

E. NFPA 418 – Standard for Heliports.

F. UL 142 - Steel Aboveground Tanks for Flammable and Combustible Liquids.

1.4 SYSTEM DESCRIPTION

A. General Description: Heliport of size and configuration indicated on Drawings consisting of hot dipped galvanized structural steel framing supporting a pre-engineered and prefabricated aluminum helicopter landing surface with connecting ramp/walkway, surrounded by a safety net, and emergency exit stairs with guardrails. Structure shall be equipped with heliport lighting, fuel/water separator, foam fire suppression, and hydronic snow melting system.

1.5 PERFORMANCE REQUIREMENTS

A. Design helicopter landing system in accordance with applicable code to accommodate dynamic loading requirements of a 22,000 lb gross weight helicopter, but not less than a uniform live load of 100 psf, and the following:

1. Uniform wind uplift of 24 psf.

2. Uniform load of 50 lb/lin ft, applied to any direction to top of guard rail, hand rail and concentrated load of 200 pounds applied at any point in any direction to rail and posts as required.
3. Concentrated load of 250 pounds applied over any one square foot of safety netting.
4. Uniform and concentrated loads need not be considered acting simultaneously.

1.6 SUBMITTALS

A. Product Data: Submit manufacturer's specifications to evidence compliance with these specifications.

B. Shop Drawings: Prior to fabrication, submit complete fabrication details and erection drawings.

C. Calculations: When requested submit design calculations and erection drawings, bearing the seal of a Professional Structural Engineer registered in the Commonwealth of Pennsylvania.

D. Welders' Certificates: Submit evidence of certification in the past 12 months in accordance with AWS D1.1 and AWS D1.4.

E. Manufacturer's instructions: Submit cleaning and priming instructions for helicopter landing surface.

1.7 QUALITY ASSURANCE

A. Manufacturer Qualification: Company capable of designing, fabricating and installing helicopter landing systems as indicated on Drawings and specified herein.

B. Welders Qualification: Certified in the past 12 months by AWS (American Welding Society).

C. Field Measurements: Take field measurements to locate building columns, beams and other attachment points. Coordinate requirements for on-site support required for erection of items supplied. Show dimensions on shop drawings.

1.8 WARRANTY

A. Manufacturer Warranty: Provide two year manufacturer warranty against fading, flaking, cracking or other deterioration of painted markings. Include provision for repainting defective markings.

PART 2 – PRODUCTS

2.1 MANUFACTURER

A. Design is based on components designed and supplied by Heliport Systems Inc., Morristown, NJ; Telephone (800) 540-0011. Facsimile (973) 540-0131. Web Site www.heliport.com. or equivalent.

2.2 HELICOPTER LANDING SYSTEM

A. Structural Steel Support Framing: Steel girders and beams, hot dip galvanized, designed to support helicopter landing surface.

B. Helicopter Landing Surface: Heliport Systems™ Aluminum Helideck System. Interlocking deck extrusions minimum 8 inch (200 mm) in width with extruded tube inside for snowmelt glycol solution.

C. Material: ASTM B 221 extruded aluminum alloy, section modulus minimum 14.03 cu in.

1. Surface Texture: Inherent non-skid helicopter landing and pedestrian walking surfaces without use of coatings of any kind.
2. Deck Sealant: Jet fuel resistant type capable of continuous water immersion as recommended by manufacturer.

D. Tie-downs: Provide tie-downs of the following types.

1. Four helicopter tie-downs such that tops of tie-downs are completely flush with top of helicopter landing surface, or Relocatable tie downs that latch onto the deck in any location, capable of accommodating any make and model of helicopter being tied down anywhere on helicopter landing surface, facing in any direction.

E. Walkway Ramp: ASTM B-221 aluminum alloy with inherent non-skid walking surface without use of coatings.

1. Capable of supporting load of 100 lb/sq ft.
2. Extruded interior glycol channel for snowmelt purposes.

F. Drainage Gutter: Manufacturer’s standard prefinished aluminum gutter of width and depth necessary to drain one in 50 year storm.

G. Safety Net: 9 gage woven wire mesh with openings 1-1/4 inch (31 mm) square in size, hot dip galvanized, for attachment to aluminum angle support frame bearing on outriggers.

1. Fabricate to dimensions indicated on Drawings.
2. Top of safety net not to project above helicopter landing surface.

H. Fuel/Water Separator: Gravity flow type. Provide where indicated on Drawings, including structural supports necessary. Pipe water only outlet to nearest roof drain capable of handling flow.

1. Water Flow Rate: Minimum 200 GPM.
2. Fuel Flow Rate: 30 GPM.
3. Separator: Comply with Factory Mutual requirements specifically for heliports, and:

a. Material: Type 304 stainless steel with 330 gal (1249 L).

b. Equip with 330 gallon (1249 L) mild steel UL 142 fuel containment tank, mild steel, painted black.
c. Insulate and heat Separator Unit for freeze protection; furnish with a fuel alarm switch and bell.

4. Product: Model H-200 Heliport Fuel/Water Separator.

I. Lighting Fixtures: Comply with FAA Specification L-807.
1. Lighted Wind Cone: Internally lighted type, with integral electrical slip ring and weatherproof stainless steel, greaseless bearings.
a. Frame: 18 inch (455 mm) diameter by 30 inch (765 mm) horizontal with windsock.
b. Windsock: Nylon material, orange in color; 96 inch (2438 mm) in length, 18 inch (457 mm) diameter at one end and 9 inch (228 mm) diameter at other end.
2. Pole: Aluminum, brushed finish, hinged at base to permit changing of lamp and windsock; equip base with electrical junction box.
3. Lamps: PAR 38, 120 volts AC, 90 to 120 watts.
4. Fixture: Model ILWC-18.

J. Perimeter Lights: Omnidirectional type with FAA Specification L-861 lens, green in color, with 67 watt 8000 hour traffic signal lamp.
1. Base: Cast aluminum type with junction box to permit direct connection of conduit without separate junction box required.
2. Fixture: Model HPL.

K. Foam Fire Suppression System: Provide permanent, fixed foam fire suppression complying with NFPA 418 for a Category H-2 Rooftop Heliport.
1. Only permanent, fixed storage connected to the building’s fire protection water standpipe system shall be used. Foam shall be dispensed from an oscillating monitor/nozzle.
2. Portable foam fire extinguishers for NFPA 418 Category H-1 heliport are not permitted.

L. Snow Melting System: Provide for helicopter landing surface and walkway/ramp. Hydronic type in which a solution of 50% propylene glycol/50% water is pumped through the aluminum decking, back to heat exchanger for reheating (closed loop), with the heat source bldg. hot water (180 deg F) at 175 GPM rate of flow into the heat exchanger.
1. Heliport Vendor shall provide pre-engineered, pre-assembled Heat Transfer Unit on a skid consisting of heat exchanger, PID control

valve, circulation pump, expansion tank, air separator, pressure/temperature gauges, Control panel with Hand-Off-Auto switch and BAS contacts for remote On/Off operation. Unit shall be set in an indoor space near the heliport.

2. Heliport Vendor shall provide outdoor Snow Sensor to automatically turn the system On at start of snowfall, Off 90 minutes after snowfall stops.
3. Heliport Vendor shall provide all outdoor/above the roof conveyance of glycol/water solution to/from the heliport landing surface and walkway/ramp.
4. Source of heat for the unit shall be bldg. hot water (180 deg F at 175 GPM) shall be provided by Division 15 and electric circuit for the unit shall be 460 VAC 3 Phase 20 amp shall be provided by Division 16. 3” black iron cut groove pipe glycol solution supply/return lines from the unit to the outside the building shall be provided by Division 15.

2.3 PAINTED MARKINGS

A. Provide painted helicopter landing surface markings of colors indicated on Drawings.

B. Comply with Federal Aviation Administration (FAA) requirements.

C. Applied marking paint shall not reduce coefficient of static friction of landing and walking surface.

D. Markings: Apply primer suitable for aluminum and two finish coats of traffic marking paint. Apply per manufacturer’s instructions.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Examine and verify that roof area below heliport system has no equipment, defects or errors that may result in poor or potentially defective application or cause latent defects in workmanship.

B. Starting installation shall imply acceptance of surfaces.

3.2 PREPARATION

A. Field Measurement/Verifications: Field measure and verify dimensions as required.

B. Protection of Adjacent Areas or Surfaces: Protect adjacent areas or surfaces from damage as result of Work of this Section.

3.3 ERECTION

A. Erect in accordance with manufacturer’s latest published requirements, instructions, specifications, and details and reviewed shop drawings.

B. Set, align and anchor helicopter landing system members in method approved by the manufacturer. Provide temporary shoring and bracing as required. Set deck members to slope indicated such that entire helicopter landing surface drains to gutter system. Provide elevations and alignment as required.

C. Helicopter landing system manufacturer is responsible for supplying, delivering to the site, and installing components required for a complete and usable installation whether or not indicated on Drawings or specified.

D. Fasten aluminum helicopter deck and ramp deck to structural steel framing with aluminum stainless steel fasteners; isolate aluminum and steel to prevent galvanic corrosion.

E. Install light fixtures and perimeter lights in locations indicated on Drawings.

F. Clean helicopter landing surface in accordance with manufacturer's instructions prior to applying painted markings.

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